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Ars Scientifica: An art-science collaboration yields rich insights
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Ars Scientifica

An art-science collaboration yields rich insights

Joint efforts between historically distinct disciplines raise a lot of questions—and, sometimes, eyebrows. In the case of art-science collaborations, skepticism can threaten to jettison experimentation: What can art say that science hasn't already said?

An exhibit at the U.S. National Academy of Sciences in Washington, D.C., suggests some answers to this question. *Taxa,* a series of paintings by Isabella Kirkland, groups species together in innovative ways that can stimulate conversation about human impact on the environment.

A visual artist and a research associate in aquatic biology at the California Academy of Sciences, Kirkland had already cultivated knowledge of and respect for the science of taxonomy when she began the series. "I had been working on individual, local endangered species," she says. "As the millennium was coming to an end, I decided to work on a grand scale—something more like a time capsule." The result of this exploration was the first painting, "Descendant" (1999), which portrays 61 species listed as endangered (or, in some cases, "presumed extinct") in the mainland United States, Hawaii or Central America.

Five subsequent paintings point up other issues in conservation science and biodiversity. "Ascendant" (2000) portrays species that have been introduced to the United States and are thriving.

"Trade" (2001, shown here) includes species that people value, harvest and sell, and whose populations have thus been depleted. The work's vivid colors underscore the human desire to own these creatures. "Gone" (2004) catalogues full-species, worldwide extinctions. Its colors are more subdued, making the piece a memorial to the organisms shown. Kirkland is currently working on *Nova,* three new paintings that depict species discovered since the passage of the U.S. Endangered Species Act in 1973.

Planning compositions that portray such great numbers of species with anatomical accuracy is a challenge, so Kirkland decided at the outset to use a time-tested genre. "The Dutch masters' still lifes looked pretty good after 400 years—you can pick out the genera of

Isabella Kirkland/Feature Inc., N.Y.

"Trade" (2001, 3′ × 4′), by Isabella Kirkland, shows species that are prized—in whole or in part—by human beings. So that viewers can identify the species portrayed, Kirkland has created a visual key and species list (reproduced on the next two pages). Orchids and beetles feature prominently; a golden-headed lion tamarin (number 4 in the key) is nearly dwarfed by a mountain sweet pitcher plant (number 52).

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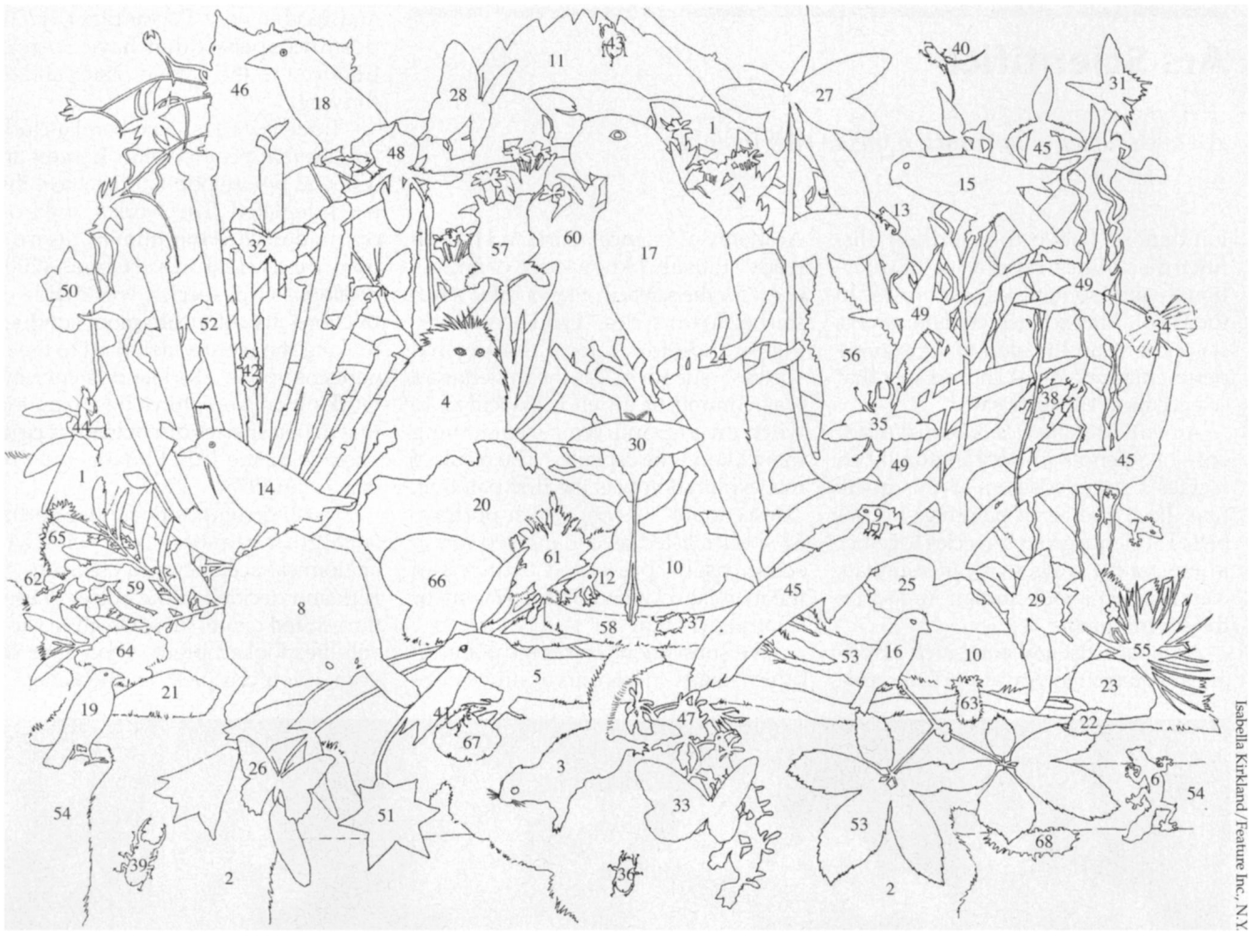

This visual key for "Trade" (2001) corresponds to the species list on the facing page. All five completed paintings, as well as their keys, can be viewed on Kirkland's Web site, isabellakirkland.com.

the bugs," she says. The paintings in *Taxa* use the genre to great effect. The large canvases are packed with life, but each animal and plant is rendered distinctly.

The series is the product of painstaking research. "I begin with the data," Kirkland says. She reads current scientific literature to find new leads, collecting detailed information on particular species. When she decides to include a species, she tries to see a specimen of it so that she can draw it at life size. "People are very generous with their time," she says. "Every time I go into any museum, I'm so profoundly shaken by the number of man-hours it represents. That's part of what I'm trying to laud."

Kirkland is modest about her hopes for this integration of biology and art. "If I inspire even three people to become taxonomists, I've won," she says. "They're not training taxonomists anymore—it doesn't have the bling of genetics." But considering species' differences and similarities is essential for our knowledge of how the world works, she believes. She also hopes the paintings will inspire people to "pay attention to biodiversity and think about their actions in terms of it." And the medium of painting itself has advantages: It can "get people to slow down" and have a deep experience of the art.

The work offers insights for visual art as well. "Nature art has sort of a bad name in the 'real' art world," says Kirkland. "I wanted to change that, to depict wildlife in a way that's not naïve." But the paintings do not sacrifice artistry for accuracy. The lush, well-balanced compositions invite the viewer's eye to travel around the canvas.

"The species in each painting don't belong together—so it's a fantasy in that regard," she says. Perhaps paradoxically, by removing species from their habitats, the paintings acquire the power to change our perception of the plants and animals within them. In this sense, Kirkland's work moves beyond the representation of scientific ideas to offer new ways of thinking about the organisms she depicts.

To broaden the audience for these works, Kirkland maintains a Web site, isabellakirkland.com. Users can explore the paintings and read more about select species. The *Nova* series will be added to the site once it is complete. She is also producing a series of three-quarter-size prints of the paintings. But the best way to experience these works will be to see them live and up close. The free exhibit, in the upstairs gallery of the National Academy of Sciences, runs April 10 to August 25 of this year.

A basic test for art-science might be whether it succeeds when judged by the standards of each discipline. The Roman poet Horace's dictum—"teach and delight"—comes to mind. Or, to use more-modern terms, is the project accurate and useful? And is it pleasing—does it succeed aesthetically? It will be revealing to consider other art-science collaborations in a similar light. As for Kirkland's paintings, it seems safe to answer both questions with a resounding yes.—*Anna Lena Phillips*

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Species List for "Trade"

1 Elephant ivory, *Loxodonta africana*
2 Pelt, clouded leopard, *Neofelis nebulosa*
3 Virginia flying squirrel, *Glaucomys sabrinus fuscus*
4 Golden-headed lion tamarin, *Leontopithecus chrysomelas*
5 Green tree monitor, *Varanus prasinus*
6 Satanic leaf-tailed gecko, *Uroplatus phantasticus*
7 Yellow-headed day gecko, *Phelsuma klemmeri*
8 Radiated tortoise, *Geochelone radiata*
9 Golden poison dart frog, *Phyllobates terribilis*
10 Madagascan tree boa, *Boa mandrita*
11 Hawksbill sea turtle shell, *Eretmochelys imbricata*
12 Ruby poison dart frog, *Epipedobates parvulus*
13 Brookesia gecko, *Brookesia peyrierasi*
14 Gurney's pitta, *Pitta gurneyi*
15 Blue lorikeet, *Vini peruviana*
16 Red siskin, *Carduelis cucullata*
17 Lear's or indigo macaw, *Anodorhynchus leari*
18 Toucan barbet, *Semnornis ramphastinus*
19 Seven-colored tanager, *Tangara fastuosa*
20 Trumpet triton, *Charonia tritonis*
21 Glory-of-the-seas cone, *Conus gloriamaris*
22 Loebbecke's murex, *Murex loebbecki*
23 Golden cowrie, *Cypraea aurantium*
24 Red coral, *Corallium rubrum*
25 Fluted giant clam, *Tridacna squamosa*
26 Peruvian swallowtail, *Papilio androgeus*
27 Queen Alexandra's birdwing, *Ornithoptera alexandrae*
28 Jamaican giant swallowtail, *Papillio homerus* Fabricius
29 Luzon peacock swallowtail, *Papilio chikae*
30 Comet moth, *Argema mittrei*
31 Madagascan sunset moth, *Chrysiridia ripheus*
32 Agrias butterfly, *Agrias claudina lugens*
33 Tissue paper butterfly, *Idea jasonia* Westwood
34 Hawk moth, *Xanthopan morgani praedicta*
35 Atlas beetle, *Chalcosoma caucasus*
36 Beyer's scarab, *Plusiotis beyeri*
37 Gold scarab, *Plusiotis resplendens*
38 Jewel beetle, *Euchroma gigantea*
39 Stag beetle, *Lucanus cervus*
40 Long-horned beech beetle, *Rosalia alpina*
41 Golden ground beetle, *Carabus auratus*
42 Metallic leaf chafer, *Plusiotis chrysargyrea*
43 Jewel scarab, *Chrysina aurigans*
44 Orchid mantis, *Hymenopus coronatus*
45 Slipper orchid, *Paphiopedilum sanderianum*
46 Ghost orchid, *Polyrrhiza lindenii* or *Polyradicion lindenii*
47 Red vanda, *Renanthera imschootiana*
48 Slipper orchid, *Paphiopedilum lawrenceanum*
49 Comet orchid, *Angraecum sesquipedale*
50 Slipper orchid, *Paphiopedilum armeniacum*
51 Gray's lily, *Lilium grayi*
52 Mountain sweet pitcher, *Sarracenia rubra ssp. jonesii*
53 American ginseng, *Panax quinquefolius*
54 Wooden table, monkey-puzzle tree, *Araucaria araucana*
55 Rainbow plant, *Byblis gigantea*
56 Pitcher plant, *Nepenthes macrophylla*
57 Iranian iris, *Iris paradoxa*
58 Wooden stand, Patagonian cypress tree, *Fitzroya cupressoides*
59 Coca plant, *Erythroxylum coca*
60 Rosy periwinkle, *Catharanthus roseus*
61 Venus fly trap, *Dionaea muscipula*
62 Seeds, three-cornered palm, *Neodypsis decaryi*
63 Nellie Cory cactus, *Coryphantha minima*
64 Peyote, *Lophophora diffusa*
65 Jabali pincushion, *Coryphantha werdermannii*
66 Matsutake, *Tricholoma magnivelare*
67 White truffle, *Tuber magnatum* Pico
68 Priam's birdwing, *Troides priamus*

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